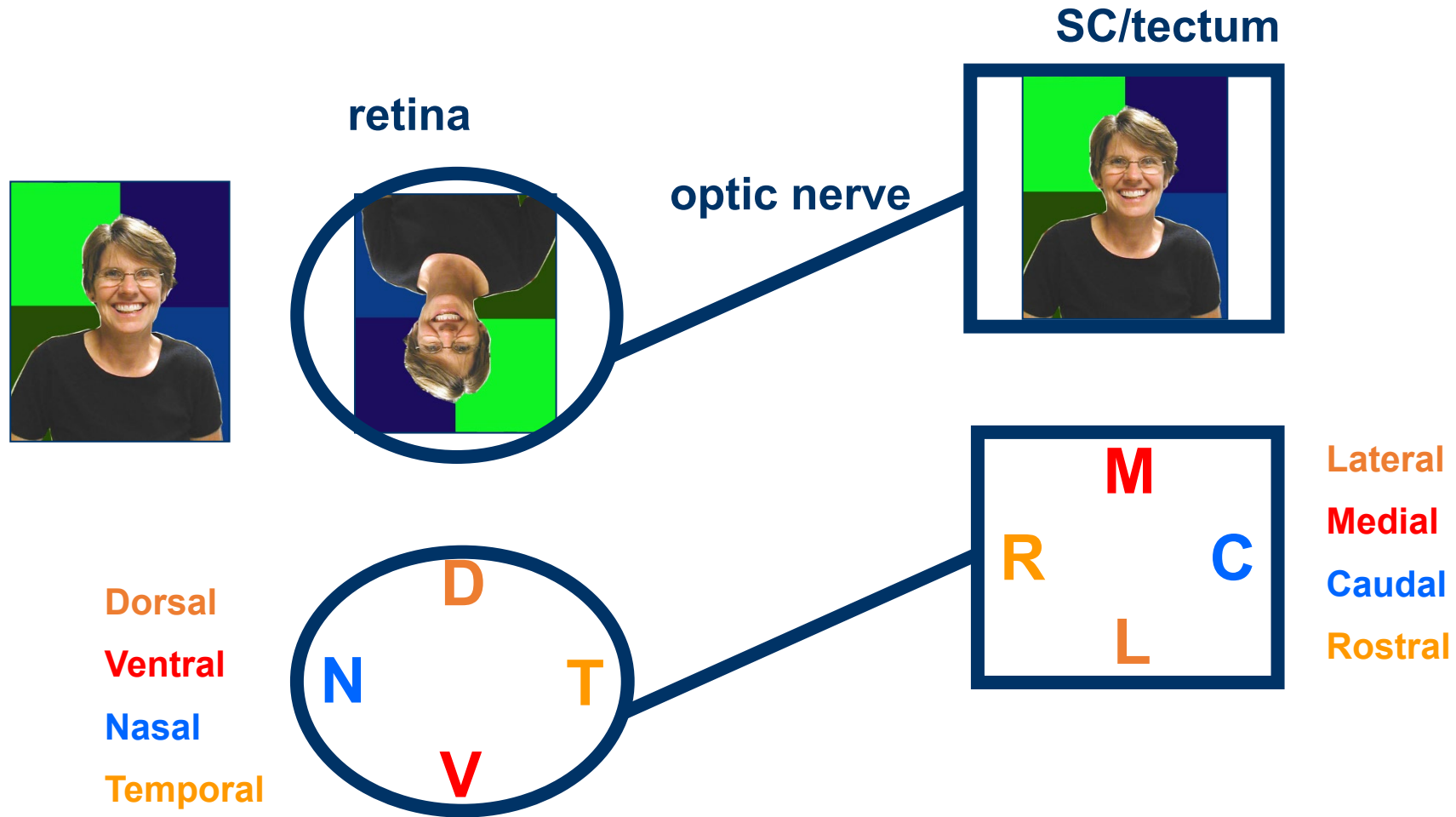
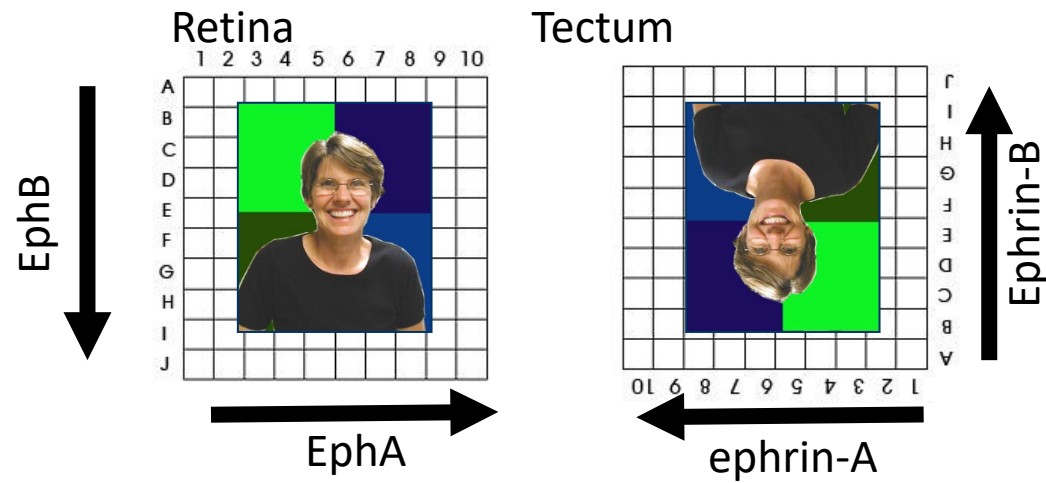
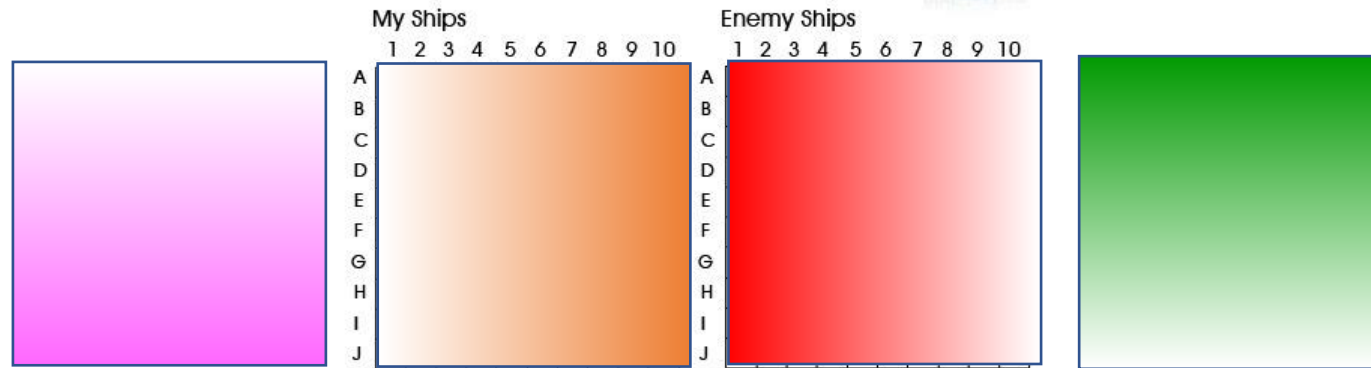


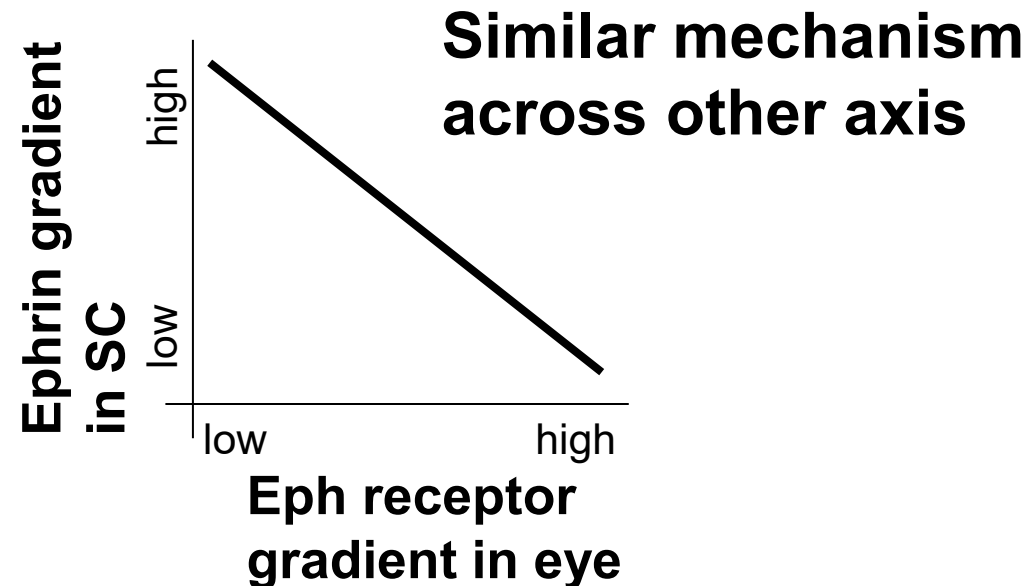
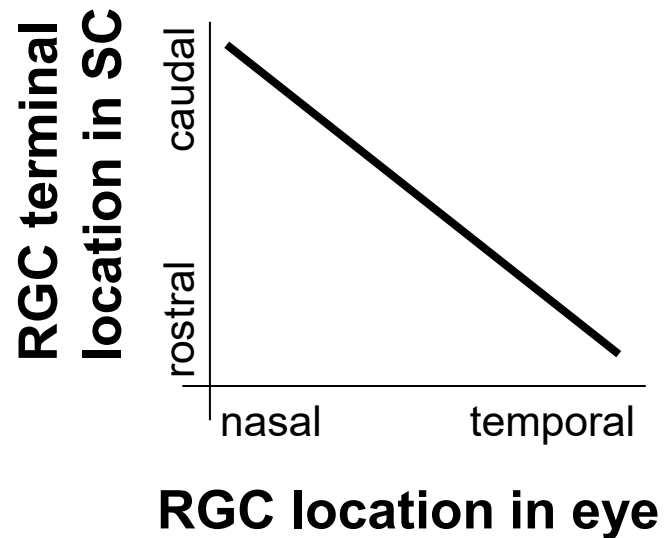
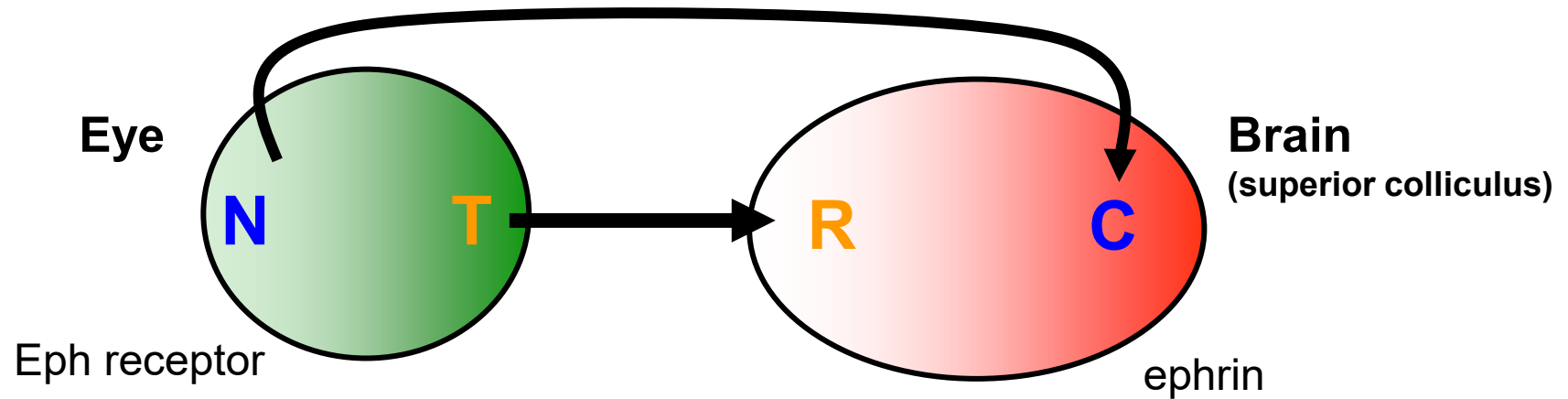
# Topographic projections



# Printable battleship game

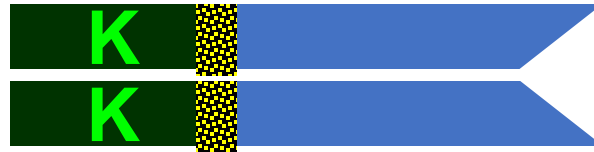


# Visual maps: encoded by gradients

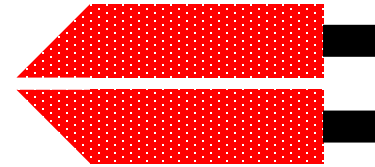


# Eph receptors and ephrin ligands

## Cell-surface proteins



**EphA**



**Ephrin-A**



**Transmembrane domain**

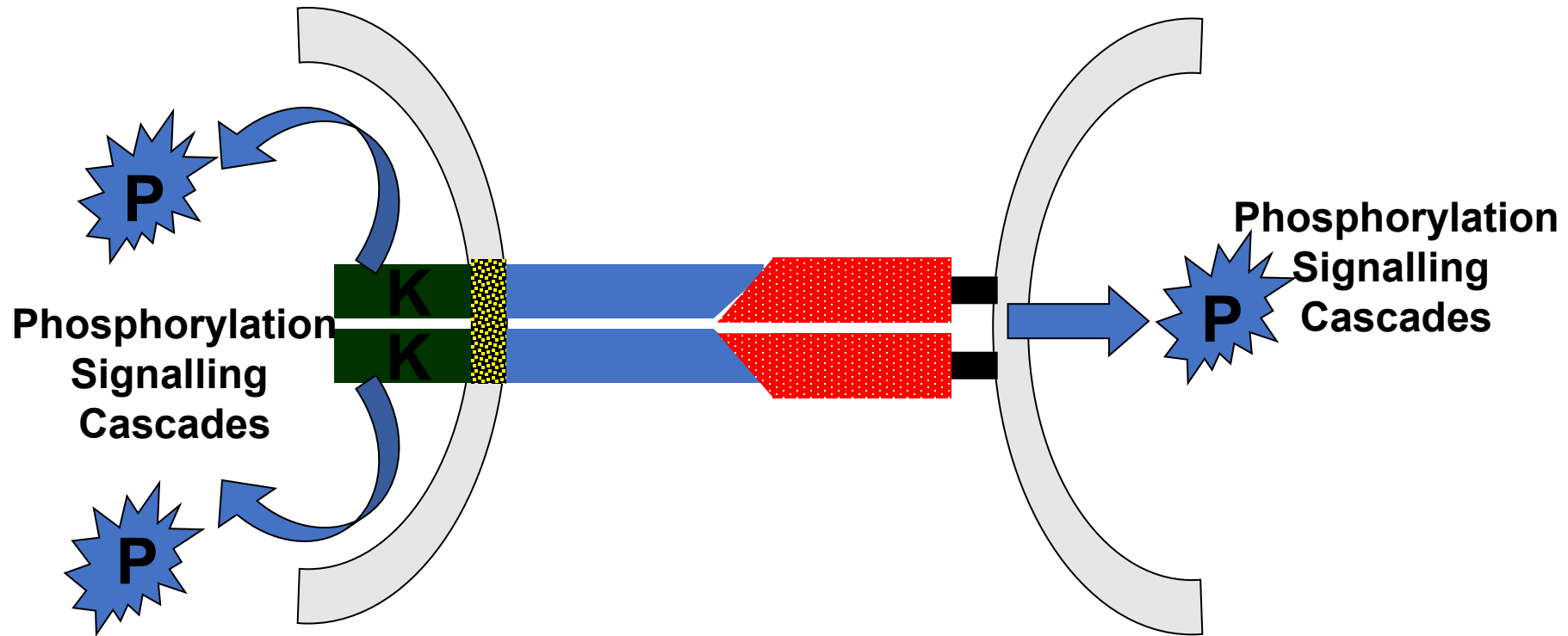


**GPI linkage**

(sugar: glycosyl-phosphatidyl-inositol)

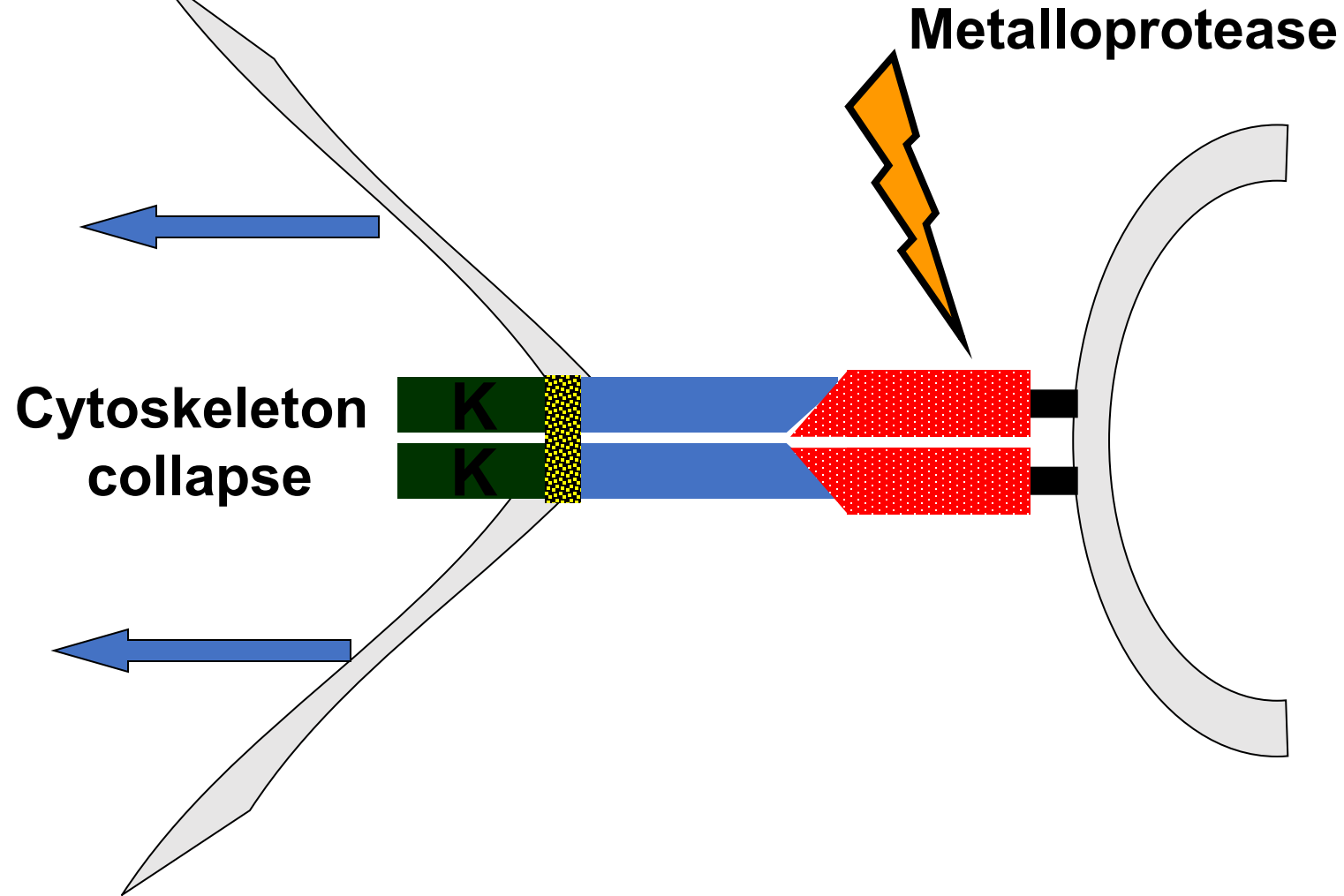
# Neuronal Growth cone

# Target cell

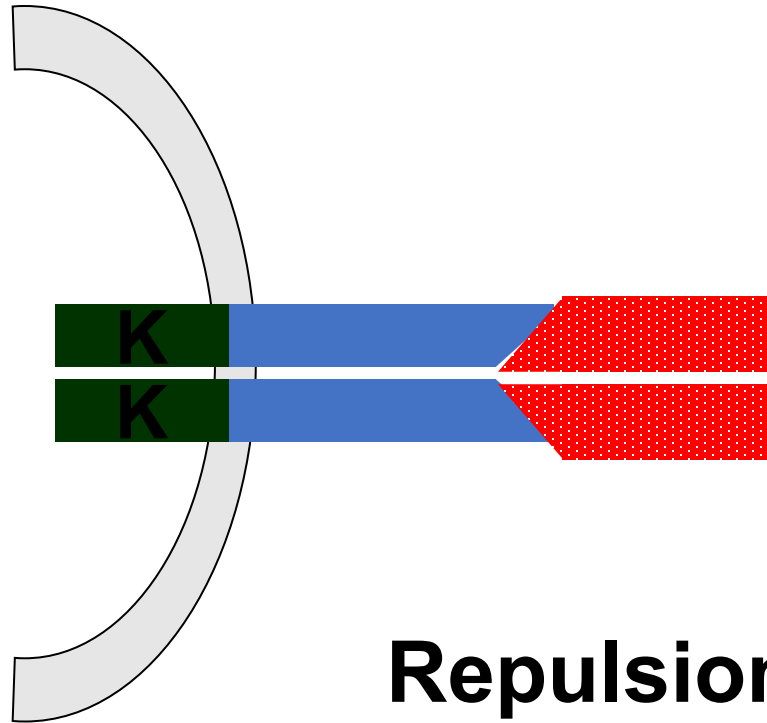


# Neuronal Growth cone

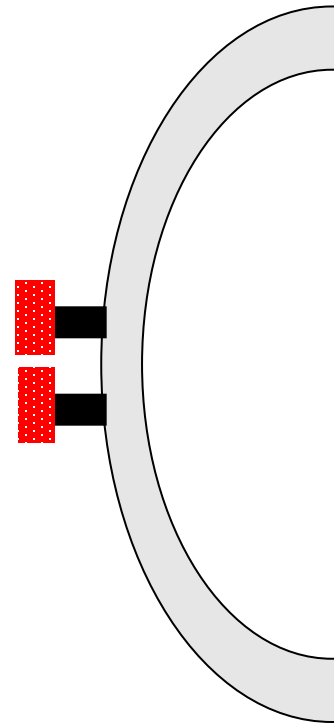
# Target cell



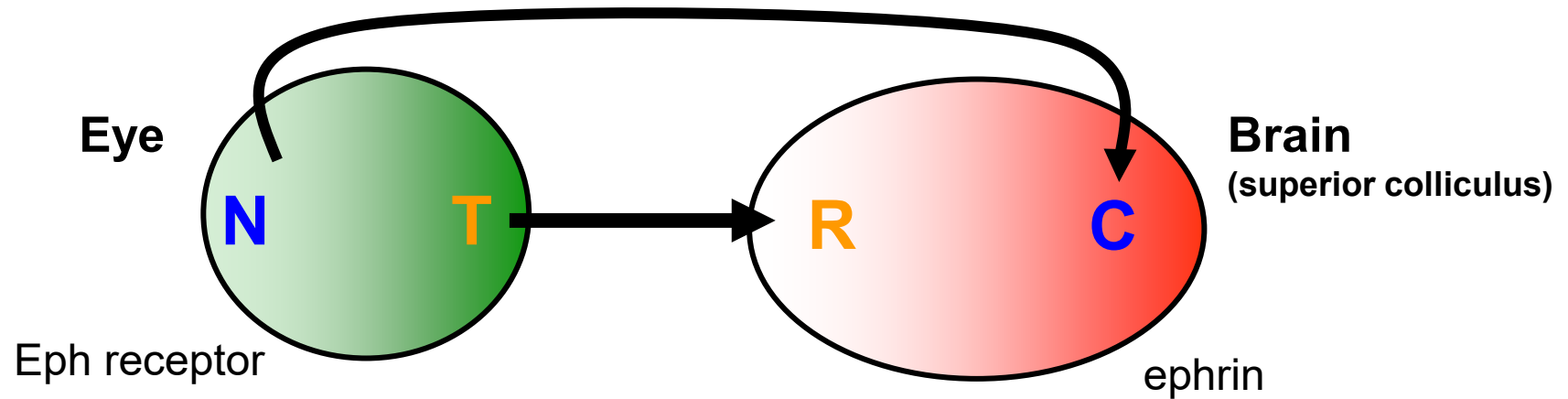
# Neuronal Growth cone



# Target cell



# Visual maps: encoded by gradients



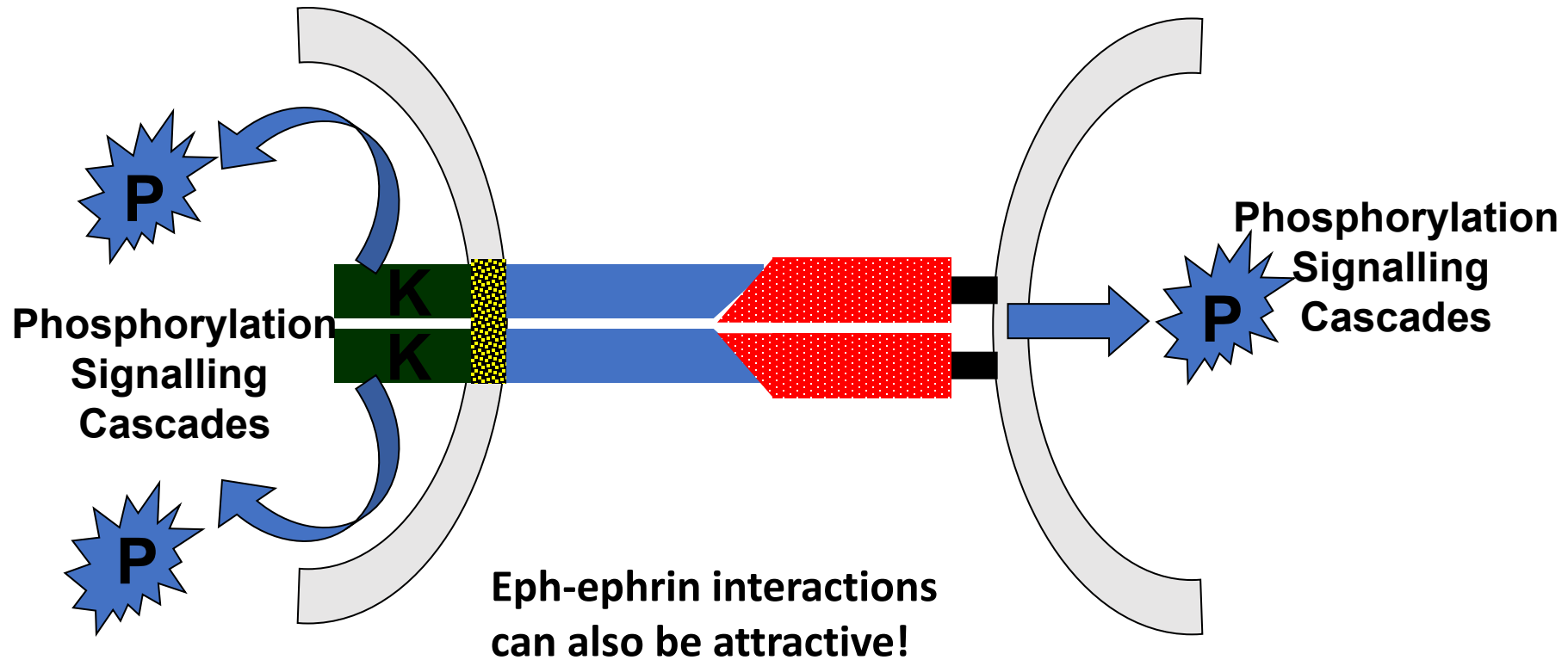
**Similar mechanism across other axis  
(dorso-ventral to medio-lateral)**

**EphB and ephrin-B**



# Neuronal Growth cone

# Target cell



# **Mechanisms of topographic map formation**

## **1. Eph-ephrin interactions**

### **Key concepts:**

- Eph receptors contact ephrin ligands: axons actively search and interact with their environment**
- Ephrin ligands repulse axons that express Eph receptors**
- Connections are formed at the site of least resistance**